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| No. | Label | Description | Hypothesized effects on distribution of cognitive ability variable |
| 1 | Reference | Benchmark distributions of demographic variables; the standard of comparison for describing the “representativeness” of the other simulated populations. | Not applicable (benchmark population). |
| 2 | Mild under-representation of high education | Lower proportion of high-education individuals, higher proportion of low-education individuals, than Population 1. | Both mean and variance affected. |
| 3 | Moderate under-representation of high education | The pattern of divergence of education proportions is similar to population 2, but the degree of non-representativeness is greater. | Both mean and variance affected. |
| 4 | Under-representation of both low and high education | Both tails of the education distribution have lower proportions than Population 1. | Only variance affected. |
| 5 | Biased joint distributions | Marginal distributions of demographic variables match population 1; joint distributions (cross classifications) do not match population 1. The pattern of non-representation alternates from over- to under-represented across the 27 (3 x 3 x) joint distributions. | Only variance affected. |
| 6 | Clustered sampling | Marginal and joint distributions of demographic variables match population 1, but only when averaged across all six age cohorts. Within each age cohort, two-thirds of the joint distribution cells contain no data. | ??? (original manuscript does not specify) |

It is important to note that because raking incorporates only marginal distributions, we expect it to have little effect in populations 5 (biased joint probabilities) and 6 (clustered sampling). In these two populations, non-representativeness occurs only at the level of joint distributions (cross-classifications), not at the level of marginal distributions.

For the current study, our pre-registered hypotheses were as follows:

1.We expected a main effect of norming method, such that WCN would lead to less-biased estimates of the norm scores than SCN, where “bias” is quantified in terms of root mean square error (*RMSE*) and mean signed difference (*MSD*).

2. We expected an interaction between norming method and the degree of non-representativeness of the input data. Specifically, we expected that as the non-representativeness of the normative sample increased, norm-score bias would increase for both methods, but that the increase in bias would be smaller for WCN than for SCN.

3. We expected that the simple effect of WCN in reducing norm-score bias would vary depending on person location on the cognitive variable. Specifically, we expected that WCN would be less effective at reducing bias at the tails of the cognitive ability distribution than in the central region of that distribution.